

## SEQUENCE LISTING

<110> BATTAGLINO, PETER  
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 KORNACKER, MICHAEL G

<120> A NOVEL HUMAN G-PROTEIN COUPLED RECEPTOR, HGPRBMY8,  
 EXPRESSED HIGHLY IN BRAIN

<130> D0047NP

<140> TBA

<141> 2001-11-13

<150> 60/317166

<151> 2001-09-04

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<160> 102

<170> PatentIn Ver. 2.1

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<213> Homo sapiens
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<213> Caenorhabditis elegans

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Val Phe Ile Val Leu Tyr Lys Asn Pro Arg Leu Gln Thr Val Pro Asn  
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Leu Leu Val Gly Asn Leu Ala Phe Ser Asp Leu Ala Leu Gly Leu Ile  
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 Glu Phe Ala Lys Glu Glu Glu Glu Glu Glu Asp Ser Glu Ser Ser Gly  
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<213> Homo sapiens
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8



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 Val Arg His Gly Glu Glu Met Glu Ser Leu Glu Ile Ile Glu Val Asn  
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 370 375 380  
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 Arg Cys Lys Phe His Arg His  
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 Arg Ser Leu Gln Asn Val Ala Asn Tyr Leu Ile Gly Ser Leu Ala Val  
 65 70 75 80  
 Thr Asp Leu Met Val Ser Val Leu Val Leu Pro Met Ala Ala Leu Tyr  
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 Ala Ile Ala Leu Asp Arg Tyr Trp Ala Ile Thr Asp Pro Ile Asp Tyr  
 130 135 140  
 Val Asn Lys Arg Thr Pro Arg Arg Ala Ala Ala Leu Ile Ser Leu Thr  
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 Trp Leu Ile Gly Phe Leu Ile Ser Ile Pro Pro Met Leu Gly Trp Arg  
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 Ala Pro Glu Asp Arg Ser Asn Pro Asn Glu Cys Thr Ile Ser Lys Asp  
 180 185 190  
 His Gly Tyr Thr Ile Tyr Ser Thr Phe Gly Ala Phe Tyr Ile Pro Leu  
 195 200 205  
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 Thr Phe Ile Leu Cys Trp Leu Pro Phe Phe Ile Val Ala Leu Val Leu  
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Pro Phe Cys Glu Ser Ser Cys His Met Pro Glu Leu Leu Gly Ala Ile  
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<212> PRT

<213> Fugu rubripes

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35 40 45

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65 70 75 80

Asn Tyr Leu Ile Gly Ser Leu Ala Val Thr Asp Leu Met Val Ser Val  
85 90 95

Leu Val Leu Pro Met Ala Ala Leu Tyr Gln Val Leu Asn Lys Trp Thr  
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Leu Gly Gln Asp Ile Cys Asp Leu Phe Ile Ala Leu Asp Val Leu Cys  
115 120 125

Cys Thr Ser Ser Ile Leu His Leu Cys Ala Ile Ala Leu Asp Arg Tyr  
130 135 140

Trp Ala Ile Thr Asp Pro Ile Asp Tyr Val Asn Lys Arg Thr Pro Arg  
145 150 155 160

Arg Ala Ala Val Leu Ile Ser Val Thr Trp Leu Ile Gly Phe Ser Ile  
165 170 175

Ser Ile Pro Pro Met Leu Gly Trp Arg Ser Ala Glu Asp Arg Ala Asn  
180 185 190

Pro Asp Ala Cys Ile Ile Ser Gln Asp Pro Gly Tyr Thr Ile Tyr Ser  
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Thr Phe Gly Ala Phe Tyr Ile Pro Leu Ile Leu Met Leu Val Leu Tyr  
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 Ala Val Phe His Lys Arg Ala Asn Gly Asp Ala Val Ser Ala Glu Trp  
 260 265 270  
 Lys Arg Gly Tyr Lys Phe Lys Pro Ser Ser Pro Cys Ala Asn Gly Ala  
 275 280 285  
 Val Arg His Gly Glu Glu Met Glu Ser Leu Glu Ile Ile Glu Val Asn  
 290 295 300  
 Ser Asn Ser Lys Thr His Leu Pro Leu Pro Asn Thr Pro Gln Ser Ser  
 305 310 315 320  
 Ser His Glu Asn Ile Asn Glu Lys Thr Thr Gly Thr Arg Arg Lys Ile  
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 Ala Leu Ala Arg Glu Arg Lys Thr Val Lys Thr Leu Gly Ile Ile Met  
 340 345 350  
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 Leu Pro Phe Cys Ala Glu Asn Cys Tyr Met Pro Glu Trp Leu Gly Ala  
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&lt;210&gt; 12

&lt;211&gt; 509

&lt;212&gt; PRT

<213> *Lymnaea stagnalis*

&lt;400&gt; 12

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 35 40 45

Ser Tyr Gly Leu Thr Gly Gln Phe Ile Asn Gly Ser His Ser Ser Arg

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225						230					235				240
Asp	Lys	Thr	Gly	Thr	Cys	Ile	Ile	Ser	Gln	Asp	Lys	Gly	Tyr	Thr	Ile
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Cys	Asn	Ser	Pro	Asp	Ser	Thr	Thr	Glu	Lys	Lys	Lys	Arg	Arg	Ala	Pro
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 Ala Asn Gly Cys Ala Glu Glu Ala Ser Ile Ala Met Leu Glu Arg Gln  
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 Cys Asn Asn Gly Lys Lys Ile Ser Ser Asn Asp Thr Pro Tyr Ser Arg  
 405 410 415  
 Thr Arg Glu Lys Leu Glu Leu Lys Arg Glu Arg Lys Ala Ala Arg Thr  
 420 425 430  
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&lt;210&gt; 13

&lt;211&gt; 572

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 13

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 Gly Ala Gly Gly Gly Gly Gly Val Val Gly Ala Gly Ser Gly Glu Asp  
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 Asn Arg Ser Ser Ala Gly Glu Pro Gly Ser Ala Gly Ala Gly Gly Asp  
 65 70 75 80  
 Val Asn Gly Thr Ala Ala Val Gly Gly Leu Val Val Ser Ala Gln Gly  
 85 90 95  
 Val Gly Val Gly Val Phe Leu Ala Ala Phe Ile Leu Met Ala Val Ala  
 100 105 110  
 Gly Asn Leu Leu Val Ile Leu Ser Val Ala Cys Asn Arg His Leu Gln  
 115 120 125  
 Thr Val Thr Asn Tyr Phe Ile Val Asn Leu Ala Val Ala Asp Leu Leu

130					135					140					
Leu	Ser	Ala	Thr	Val	Leu	Pro	Phe	Ser	Ala	Thr	Met	Glu	Val	Leu	Gly
145					150					155					160
Phe	Trp	Ala	Phe	Gly	Arg	Ala	Phe	Cys	Asp	Val	Trp	Ala	Ala	Val	Asp
				165					170					175	
Val	Leu	Cys	Cys	Thr	Ala	Ser	Ile	Leu	Ser	Leu	Cys	Thr	Ile	Ser	Val
			180					185					190		
Asp	Arg	Tyr	Val	Gly	Val	Arg	His	Ser	Leu	Lys	Tyr	Pro	Ala	Ile	Met
		195					200					205			
Thr	Glu	Arg	Lys	Ala	Ala	Ala	Ile	Leu	Ala	Leu	Leu	Trp	Val	Val	Ala
	210					215					220				
Leu	Val	Val	Ser	Val	Gly	Pro	Leu	Leu	Gly	Trp	Lys	Glu	Pro	Val	Pro
225					230					235					240
Pro	Asp	Glu	Arg	Phe	Cys	Gly	Ile	Thr	Glu	Glu	Ala	Gly	Tyr	Ala	Val
				245					250					255	
Phe	Ser	Ser	Val	Cys	Ser	Phe	Tyr	Leu	Pro	Met	Ala	Val	Ile	Val	Val
			260					265					270		
Met	Tyr	Cys	Arg	Val	Tyr	Val	Val	Ala	Arg	Ser	Thr	Thr	Arg	Ser	Leu
		275					280					285			
Glu	Ala	Gly	Val	Lys	Arg	Glu	Arg	Gly	Lys	Ala	Ser	Glu	Val	Val	Leu
	290					295					300				
Arg	Ile	His	Cys	Arg	Gly	Ala	Ala	Thr	Gly	Ala	Asp	Gly	Ala	His	Gly
305					310					315					320
Met	Arg	Ser	Ala	Lys	Gly	His	Thr	Phe	Arg	Ser	Ser	Leu	Ser	Val	Arg
				325					330					335	
Leu	Leu	Lys	Phe	Ser	Arg	Glu	Lys	Lys	Ala	Ala	Lys	Thr	Leu	Ala	Ile
			340					345					350		
Val	Val	Gly	Val	Phe	Val	Leu	Cys	Trp	Phe	Pro	Phe	Phe	Phe	Val	Leu
		355					360					365			
Pro	Leu	Gly	Ser	Leu	Phe	Pro	Gln	Leu	Lys	Pro	Ser	Glu	Gly	Val	Phe
	370					375					380				
Lys	Val	Ile	Phe	Trp	Leu	Gly	Tyr	Phe	Asn	Ser	Cys	Val	Asn	Pro	Leu
385					390					395					400
Ile	Tyr	Pro	Cys	Ser	Ser	Arg	Glu	Phe	Lys	Arg	Ala	Phe	Leu	Arg	Leu
				405					410					415	
Leu	Arg	Cys	Gln	Cys	Arg	Arg	Arg	Arg	Arg	Arg	Arg	Pro	Leu	Trp	Arg
			420					425					430		
Val	Tyr	Gly	His	His	Trp	Arg	Ala	Ser	Thr	Ser	Gly	Leu	Arg	Gln	Asp
		435					440					445			

Cys Ala Pro Ser Ser Gly Asp Ala Pro Pro Gly Ala Pro Leu Ala Leu  
 450 455 460  
 Thr Ala Leu Pro Asp Pro Asp Pro Glu Pro Pro Gly Thr Pro Glu Met  
 465 470 475 480  
 Gln Ala Pro Val Ala Ser Arg Arg Lys Pro Pro Ser Ala Phe Arg Glu  
 485 490 495  
 Trp Arg Leu Leu Gly Pro Phe Arg Arg Pro Thr Thr Gln Leu Arg Ala  
 500 505 510  
 Lys Val Ser Ser Leu Ser His Lys Ile Arg Ala Gly Gly Ala Gln Arg  
 515 520 525  
 Ala Glu Ala Ala Cys Ala Gln Arg Ser Glu Val Glu Ala Val Ser Leu  
 530 535 540  
 Gly Val Pro His Glu Val Ala Glu Gly Ala Thr Cys Gln Ala Tyr Glu  
 545 550 555 560  
 Leu Ala Asp Tyr Ser Asn Leu Arg Glu Thr Asp Ile  
 565 570

<210> 14  
 <211> 562  
 <212> PRT  
 <213> Mus musculus

<400> 14  
 Met Thr Phe Arg Asp Ile Leu Ser Val Thr Phe Glu Gly Pro Arg Ala  
 1 5 10 15  
 Ser Ser Ser Thr Gly Gly Ser Gly Ala Gly Gly Gly Ala Gly Thr Val  
 20 25 30  
 Gly Pro Glu Gly Pro Ala Val Gly Gly Val Pro Gly Ala Thr Gly Gly  
 35 40 45  
 Ser Ala Val Val Gly Thr Gly Ser Gly Glu Asp Asn Gln Ser Ser Thr  
 50 55 60  
 Ala Glu Ala Gly Ala Ala Ala Ser Gly Glu Val Asn Gly Ser Ala Ala  
 65 70 75 80  
 Val Gly Gly Leu Val Val Ser Ala Gln Gly Val Gly Val Gly Val Phe  
 85 90 95  
 Leu Ala Ala Phe Ile Leu Thr Ala Val Ala Gly Asn Leu Leu Val Ile  
 100 105 110  
 Leu Ser Val Ala Cys Asn Arg His Leu Gln Thr Val Thr Asn Tyr Phe  
 115 120 125  
 Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Ser Ala Ala Val Leu  
 130 135 140  
 Pro Phe Ser Ala Thr Met Glu Val Leu Gly Phe Trp Pro Phe Gly Arg



145					150					155				160	
Thr	Phe	Cys	Asp	Val	Trp	Ala	Ala	Val	Asp	Val	Leu	Cys	Cys	Thr	Ala
				165					170					175	
Ser	Ile	Leu	Ser	Leu	Cys	Thr	Ile	Ser	Val	Asp	Arg	Tyr	Val	Gly	Val
			180					185					190		
Arg	His	Ser	Leu	Lys	Tyr	Pro	Ala	Ile	Met	Thr	Glu	Arg	Lys	Ala	Ala
		195					200					205			
Ala	Ile	Leu	Ala	Leu	Leu	Trp	Ala	Val	Ala	Leu	Val	Val	Ser	Val	Gly
	210					215					220				
Pro	Leu	Leu	Gly	Trp	Lys	Glu	Pro	Val	Pro	Pro	Asp	Glu	Arg	Phe	Cys
225					230					235					240
Gly	Ile	Thr	Glu	Glu	Val	Gly	Tyr	Ala	Ile	Phe	Ser	Ser	Val	Cys	Ser
				245					250					255	
Phe	Tyr	Leu	Pro	Met	Ala	Val	Ile	Val	Val	Met	Tyr	Cys	Arg	Val	Tyr
			260					265					270		
Val	Val	Ala	Arg	Ser	Thr	Thr	Arg	Ser	Leu	Glu	Ala	Gly	Ile	Lys	Arg
		275					280					285			
Glu	Pro	Gly	Lys	Ala	Ser	Glu	Val	Val	Leu	Arg	Ile	His	Cys	Arg	Gly
	290					295					300				
Ala	Ala	Thr	Ser	Ala	Lys	Gly	Asn	Pro	Gly	Thr	Gln	Ser	Ser	Lys	Gly
305					310					315					320
His	Thr	Leu	Arg	Ser	Ser	Leu	Ser	Val	Arg	Leu	Leu	Lys	Phe	Ser	Arg
				325					330					335	
Glu	Lys	Lys	Ala	Ala	Lys	Thr	Leu	Ala	Ile	Val	Val	Gly	Val	Phe	Val
			340					345					350		
Leu	Cys	Trp	Phe	Pro	Phe	Phe	Phe	Val	Leu	Pro	Leu	Gly	Ser	Leu	Phe
		355					360					365			
Pro	Gln	Leu	Lys	Pro	Ser	Glu	Gly	Val	Phe	Lys	Val	Ile	Phe	Trp	Leu
	370					375					380				
Gly	Tyr	Phe	Asn	Ser	Cys	Val	Asn	Pro	Leu	Ile	Tyr	Pro	Cys	Ser	Ser
385					390					395					400
Arg	Glu	Phe	Lys	Arg	Ala	Phe	Leu	Arg	Leu	Leu	Arg	Cys	Gln	Cys	Arg
				405					410					415	
Arg	Arg	Arg	Arg	Arg	Leu	Trp	Pro	Ser	Leu	Arg	Pro	Pro	Leu	Ala	Ser
				420				425					430		
Leu	Asp	Arg	Arg	Pro	Ala	Leu	Arg	Leu	Cys	Pro	Gln	Pro	Ala	His	Arg
		435					440				445				
Thr	Pro	Arg	Gly	Ser	Pro	Ser	Pro	His	Cys	Thr	Pro	Arg	Pro	Gly	Leu
	450					455					460				

Arg Arg His Ala Gly Gly Ala Gly Phe Gly Leu Arg Pro Ser Lys Ala  
 465 470 475 480  
 Ser Leu Arg Leu Arg Glu Trp Arg Leu Leu Gly Pro Leu Gln Arg Pro  
 485 490 495  
 Thr Thr Gln Leu Arg Ala Lys Val Ser Ser Leu Ser His Lys Phe Arg  
 500 505 510  
 Ser Gly Gly Ala Arg Arg Ala Glu Thr Ala Cys Ala Leu Arg Ser Glu  
 515 520 525  
 Val Glu Ala Val Ser Leu Asn Val Pro Gln Asp Gly Ala Glu Ala Val  
 530 535 540  
 Ile Cys Gln Ala Tyr Glu Pro Gly Asp Leu Ser Asn Leu Arg Glu Thr  
 545 550 555 560  
 Asp Ile

<210> 15  
 <211> 499  
 <212> PRT  
 <213> Homo sapiens

<400> 15  
 Met Val Phe Leu Ser Gly Asn Ala Ser Asp Ser Ser Asn Cys Thr Gln  
 1 5 10 15  
 Pro Pro Ala Pro Val Asn Ile Ser Lys Ala Ile Leu Leu Gly Val Ile  
 20 25 30  
 Leu Gly Gly Leu Ile Leu Phe Gly Val Leu Gly Asn Ile Leu Val Ile  
 35 40 45  
 Leu Ser Val Ala Cys His Arg His Leu His Ser Val Thr His Tyr Tyr  
 50 55 60  
 Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Thr Ser Thr Val Leu  
 65 70 75 80  
 Pro Phe Ser Ala Ile Phe Glu Val Leu Gly Tyr Trp Ala Phe Gly Arg  
 85 90 95  
 Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala  
 100 105 110  
 Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val  
 115 120 125  
 Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Arg Arg Gly Leu  
 130 135 140  
 Met Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly  
 145 150 155 160  
 Pro Leu Phe Gly Trp Arg Gln Pro Ala Pro Glu Asp Glu Thr Ile Cys

19

Leu Val Glu Thr Gly Phe His His Val Gly Gln Asp Asp Leu Asp Leu  
                             485                            490                            495

Leu Thr Ser

<210> 16

<211> 429

<212> PRT

<213> Homo sapiens

<400> 16

Met Val Phe Leu Ser Gly Asn Ala Ser Asp Ser Ser Asn Cys Thr Gln  
     1                            5                            10                            15

Pro Pro Ala Pro Val Asn Ile Ser Lys Ala Ile Leu Leu Gly Val Ile  
                             20                            25                            30

Leu Gly Gly Leu Ile Leu Phe Gly Val Leu Gly Asn Ile Leu Val Ile  
                             35                            40                            45

Leu Ser Val Ala Cys His Arg His Leu His Ser Val Thr His Tyr Tyr  
     50                            55                            60

Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Thr Ser Thr Val Leu  
     65                            70                            75                            80

Pro Phe Ser Ala Ile Phe Glu Val Leu Gly Tyr Trp Ala Phe Gly Arg  
                             85                            90                            95

Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala  
                             100                            105                            110

Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val  
     115                            120                            125

Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Arg Arg Gly Leu  
     130                            135                            140

Met Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly  
     145                            150                            155                            160

Pro Leu Phe Gly Trp Arg Gln Pro Ala Pro Glu Asp Glu Thr Ile Cys  
                             165                            170                            175

Gln Ile Asn Glu Glu Pro Gly Tyr Val Leu Phe Ser Ala Leu Gly Ser  
                             180                            185                            190

Phe Tyr Leu Pro Leu Ala Ile Ile Leu Val Met Tyr Cys Arg Val Tyr  
     195                            200                            205

Val Val Ala Lys Arg Glu Ser Arg Gly Leu Lys Ser Gly Leu Lys Thr  
     210                            215                            220

Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn  
     225                            230                            235                            240

Ala Pro Ala Gly Gly Ser Gly Met Ala Ser Ala Lys Thr Lys Thr His

245										250					255				
Phe	Ser	Val	Arg	Leu	Leu	Lys	Phe	Ser	Arg	Glu	Lys	Lys	Ala	Ala	Lys				
			260					265					270						
Thr	Leu	Gly	Ile	Val	Val	Gly	Cys	Phe	Val	Leu	Cys	Trp	Leu	Pro	Phe				
		275					280					285							
Phe	Leu	Val	Met	Pro	Ile	Gly	Ser	Phe	Phe	Pro	Asp	Phe	Lys	Pro	Ser				
	290					295					300								
Glu	Thr	Val	Phe	Lys	Ile	Val	Phe	Trp	Leu	Gly	Tyr	Leu	Asn	Ser	Cys				
305					310					315					320				
Ile	Asn	Pro	Ile	Ile	Tyr	Pro	Cys	Ser	Ser	Gln	Glu	Phe	Lys	Lys	Ala				
			325					330						335					
Phe	Gln	Asn	Val	Leu	Arg	Ile	Gln	Cys	Leu	Arg	Arg	Lys	Gln	Ser	Ser				
			340					345					350						
Lys	His	Ala	Leu	Gly	Tyr	Thr	Leu	His	Pro	Pro	Ser	Gln	Ala	Val	Glu				
		355					360					365							
Gly	Gln	His	Lys	Asp	Met	Val	Arg	Ile	Pro	Val	Gly	Ser	Arg	Glu	Thr				
	370					375					380								
Phe	Tyr	Arg	Ile	Ser	Lys	Thr	Asp	Gly	Val	Cys	Glu	Trp	Lys	Phe	Phe				
385					390					395					400				
Ser	Ser	Met	Pro	Arg	Gly	Ser	Ala	Arg	Ile	Thr	Val	Ser	Lys	Asp	Gln				
			405					410						415					
Ser	Ser	Cys	Thr	Thr	Ala	Arg	Gly	His	Thr	Pro	Met	Thr							
			420				425												

&lt;210&gt; 17

&lt;211&gt; 455

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 17

Met	Val	Phe	Leu	Ser	Gly	Asn	Ala	Ser	Asp	Ser	Ser	Asn	Cys	Thr	Gln
1				5					10					15	
Pro	Pro	Ala	Pro	Val	Asn	Ile	Ser	Lys	Ala	Ile	Leu	Leu	Gly	Val	Ile
			20					25					30		
Leu	Gly	Gly	Leu	Ile	Leu	Phe	Gly	Val	Leu	Gly	Asn	Ile	Leu	Val	Ile
		35					40					45			
Leu	Ser	Val	Ala	Cys	His	Arg	His	Leu	His	Ser	Val	Thr	His	Tyr	Tyr
	50					55					60				
Ile	Val	Asn	Leu	Ala	Val	Ala	Asp	Leu	Leu	Leu	Thr	Ser	Thr	Val	Leu
65					70					75					80
Pro	Phe	Ser	Ala	Ile	Phe	Glu	Val	Leu	Gly	Tyr	Trp	Ala	Phe	Gly	Arg
				85					90					95	

Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala  
 100 105 110  
 Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val  
 115 120 125  
 Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Arg Arg Gly Leu  
 130 135 140  
 Met Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly  
 145 150 155 160  
 Pro Leu Phe Gly Trp Arg Gln Pro Ala Pro Glu Asp Glu Thr Ile Cys  
 165 170 175  
 Gln Ile Asn Glu Glu Pro Gly Tyr Val Leu Phe Ser Ala Leu Gly Ser  
 180 185 190  
 Phe Tyr Leu Pro Leu Ala Ile Ile Leu Val Met Tyr Cys Arg Val Tyr  
 195 200 205  
 Val Val Ala Lys Arg Glu Ser Arg Gly Leu Lys Ser Gly Leu Lys Thr  
 210 215 220  
 Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn  
 225 230 235 240  
 Ala Pro Ala Gly Gly Ser Gly Met Ala Ser Ala Lys Thr Lys Thr His  
 245 250 255  
 Phe Ser Val Arg Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys  
 260 265 270  
 Thr Leu Gly Ile Val Val Gly Cys Phe Val Leu Cys Trp Leu Pro Phe  
 275 280 285  
 Phe Leu Val Met Pro Ile Gly Ser Phe Phe Pro Asp Phe Lys Pro Ser  
 290 295 300  
 Glu Thr Val Phe Lys Ile Val Phe Trp Leu Gly Tyr Leu Asn Ser Cys  
 305 310 315 320  
 Ile Asn Pro Ile Ile Tyr Pro Cys Ser Ser Gln Glu Phe Lys Lys Ala  
 325 330 335  
 Phe Gln Asn Val Leu Arg Ile Gln Cys Leu Cys Arg Lys Gln Ser Ser  
 340 345 350  
 Lys His Ala Leu Gly Tyr Thr Leu His Pro Pro Ser Gln Ala Val Glu  
 355 360 365  
 Gly Gln His Lys Asp Met Val Arg Ile Pro Val Gly Ser Arg Glu Thr  
 370 375 380  
 Phe Tyr Arg Ile Ser Lys Thr Asp Gly Val Cys Glu Trp Lys Phe Phe  
 385 390 395 400  
 Ser Ser Met Pro Arg Gly Ser Ala Arg Ile Thr Val Ser Lys Asp Gln

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<210> 18
<211> 466
<212> PRT
<213> Rattus norvegicus
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23

Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn  
 225 230 235 240  
 Val Pro Ala Glu Gly Gly Gly Val Ser Ser Ala Lys Asn Lys Thr His  
 245 250 255  
 Phe Ser Val Arg Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys  
 260 265 270  
 Thr Leu Gly Ile Val Val Gly Cys Phe Val Leu Cys Trp Leu Pro Phe  
 275 280 285  
 Phe Leu Val Met Pro Ile Gly Ser Phe Phe Pro Asp Phe Lys Pro Ser  
 290 295 300  
 Glu Thr Val Phe Lys Ile Val Phe Trp Leu Gly Tyr Leu Asn Ser Cys  
 305 310 315 320  
 Ile Asn Pro Ile Ile Tyr Pro Cys Ser Ser Gln Glu Phe Lys Lys Ala  
 325 330 335  
 Phe Gln Asn Val Leu Arg Ile Gln Cys Leu Arg Arg Arg Gln Ser Ser  
 340 345 350  
 Lys His Ala Leu Gly Tyr Thr Leu His Pro Pro Ser Gln Ala Leu Glu  
 355 360 365  
 Gly Gln His Arg Asp Met Val Arg Ile Pro Val Gly Ser Gly Glu Thr  
 370 375 380  
 Phe Tyr Lys Ile Ser Lys Thr Asp Gly Val Cys Glu Trp Lys Phe Phe  
 385 390 395 400  
 Ser Ser Met Pro Gln Gly Ser Ala Arg Ile Thr Val Pro Lys Asp Gln  
 405 410 415  
 Ser Ala Cys Thr Thr Ala Arg Val Arg Ser Lys Ser Phe Leu Gln Val  
 420 425 430  
 Cys Cys Cys Val Gly Ser Ser Ala Pro Arg Pro Glu Glu Asn His Gln  
 435 440 445  
 Val Pro Thr Ile Lys Ile His Thr Ile Ser Leu Gly Glu Asn Gly Glu  
 450 455 460  
 Glu Val  
 465

<210> 19  
 <211> 466  
 <212> PRT  
 <213> Mus musculus

<400> 19  
 Met Val Leu Leu Ser Glu Asn Ala Ser Glu Gly Ser Asn Cys Thr His  
 1 5 10 15



Pro Pro Ala Gln Val Asn Ile Ser Lys Ala Ile Leu Leu Gly Val Ile  
                   20                  25                  30  
 Leu Gly Gly Leu Ile Ile Phe Gly Val Leu Gly Asn Ile Leu Val Ile  
                   35                  40                  45  
 Leu Ser Val Ala Cys His Arg His Leu His Ser Val Thr His Tyr Tyr  
                   50                  55                  60  
 Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Thr Ser Thr Val Leu  
                   65                  70                  75                  80  
 Pro Phe Ser Ala Ile Phe Glu Ile Leu Gly Tyr Trp Ala Phe Gly Arg  
                   85                  90                  95  
 Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala  
                   100                  105                  110  
 Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val  
                   115                  120                  125  
 Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Arg Arg Gly Val  
                   130                  135                  140  
 Arg Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly  
                   145                  150                  155                  160  
 Pro Leu Phe Gly Trp Arg Gln Gln Ala Pro Glu Asp Glu Thr Ile Cys  
                   165                  170                  175  
 Gln Ile Asn Glu Glu Pro Gly Tyr Val Leu Phe Ser Ala Leu Gly Ser  
                   180                  185                  190  
 Phe Tyr Val Pro Leu Thr Ile Ile Leu Val Met Tyr Cys Arg Val Tyr  
                   195                  200                  205  
 Val Val Ala Lys Arg Glu Ser Arg Gly Leu Lys Ser Gly Leu Lys Thr  
                   210                  215                  220  
 Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn  
                   225                  230                  235                  240  
 Val Pro Ala Glu Gly Ser Gly Val Ser Ser Ala Lys Asn Lys Thr His  
                   245                  250                  255  
 Phe Ser Val Arg Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys  
                   260                  265                  270  
 Thr Leu Gly Ile Val Val Gly Cys Phe Val Leu Cys Trp Leu Pro Phe  
                   275                  280                  285  
 Phe Leu Val Met Pro Ile Gly Ser Phe Phe Pro Asn Phe Lys Pro Pro  
                   290                  295                  300  
 Glu Thr Val Phe Lys Ile Val Phe Trp Leu Gly Tyr Leu Asn Ser Cys  
                   305                  310                  315                  320  
 Ile Asn Pro Ile Ile Tyr Pro Cys Ser Ser Gln Glu Phe Lys Lys Ala  
                   325                  330                  335

Phe Gln Asn Val Leu Arg Ile Gln Cys Leu Arg Arg Arg Gln Ser Ser  
340 345 350

Lys His Ala Leu Gly Tyr Thr Leu His Pro Pro Ser Gln Ala Val Glu  
355 360 365

Glu Gln His Arg Gly Met Val Arg Ile Pro Val Gly Ser Gly Glu Thr  
370 375 380

Phe Tyr Lys Ile Ser Lys Thr Asp Gly Val Cys Glu Trp Lys Phe Phe  
385 390 395 400

Ser Ser Met Pro Gln Gly Ser Ala Arg Ile Thr Met Pro Lys Asp Gln  
405 410 415

Ser Ala Cys Thr Thr Ala Arg Val Arg Ser Lys Ser Phe Leu Gln Val  
420 425 430

Cys Cys Cys Val Gly Ser Ser Thr Pro Arg Pro Glu Glu Asn His Gln  
435 440 445

Val Pro Thr Ile Lys Ile His Thr Ile Ser Leu Gly Glu Asn Gly Glu  
450 455 460

Glu Val  
465

<210> 20

<211> 466

<212> PRT

<213> Bos taurus

<400> 20

Met Val Phe Leu Ser Gly Asn Ala Ser Asp Ser Ser Asn Cys Thr His  
1 5 10 15

Pro Pro Pro Pro Val Asn Ile Ser Lys Ala Ile Leu Leu Gly Val Ile  
20 25 30

Leu Gly Gly Leu Ile Leu Phe Gly Val Leu Gly Asn Ile Leu Val Ile  
35 40 45

Leu Ser Val Ala Cys His Arg His Leu His Ser Val Thr His Tyr Tyr  
50 55 60

Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Thr Ser Thr Val Leu  
65 70 75 80

Pro Phe Ser Ala Ile Phe Glu Ile Leu Gly Tyr Trp Ala Phe Gly Arg  
85 90 95

Val Phe Cys Asn Val Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala  
100 105 110

Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val  
115 120 125

Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Lys Arg Gly Leu  
 130 135 140  
 Met Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly  
 145 150 155 160  
 Pro Leu Phe Gly Trp Arg Gln Pro Ala Pro Glu Asp Glu Thr Ile Cys  
 165 170 175  
 Gln Ile Asn Glu Glu Pro Gly Tyr Val Leu Phe Ser Ala Leu Gly Ser  
 180 185 190  
 Phe Tyr Val Pro Leu Thr Ile Ile Leu Val Met Tyr Cys Arg Val Tyr  
 195 200 205  
 Val Val Ala Lys Arg Glu Ser Arg Gly Leu Lys Ser Gly Leu Lys Thr  
 210 215 220  
 Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn  
 225 230 235 240  
 Ala Gln Val Gly Gly Ser Gly Val Thr Ser Ala Lys Asn Lys Thr His  
 245 250 255  
 Phe Ser Val Arg Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys  
 260 265 270  
 Thr Leu Gly Ile Val Val Gly Cys Phe Val Leu Cys Trp Leu Pro Phe  
 275 280 285  
 Phe Leu Val Met Pro Ile Gly Ser Phe Phe Pro Asp Phe Arg Pro Ser  
 290 295 300  
 Glu Thr Val Phe Lys Ile Ala Phe Trp Leu Gly Tyr Leu Asn Ser Cys  
 305 310 315 320  
 Ile Asn Pro Ile Ile Tyr Pro Cys Ser Ser Gln Glu Phe Lys Lys Ala  
 325 330 335  
 Phe Gln Asn Val Leu Arg Ile Gln Cys Leu Arg Arg Lys Gln Ser Ser  
 340 345 350  
 Lys His Thr Leu Gly Tyr Thr Leu His Ala Pro Ser His Val Leu Glu  
 355 360 365  
 Gly Gln His Lys Asp Leu Val Arg Ile Pro Val Gly Ser Ala Glu Thr  
 370 375 380  
 Phe Tyr Lys Ile Ser Lys Thr Asp Gly Val Cys Glu Trp Lys Ile Phe  
 385 390 395 400  
 Ser Ser Leu Pro Arg Gly Ser Ala Arg Met Ala Val Ala Arg Asp Pro  
 405 410 415  
 Ser Ala Cys Thr Thr Ala Arg Val Arg Ser Lys Ser Phe Leu Gln Val  
 420 425 430  
 Cys Cys Cys Leu Gly Pro Ser Thr Pro Ser His Gly Glu Asn His Gln  
 435 440 445

Ile Pro Thr Ile Lys Ile His Thr Ile Ser Leu Ser Glu Asn Gly Glu  
 450 455 460

Glu Val  
 465

<210> 21

<211> 295

<212> PRT

<213> Canis familiaris

<400> 21

Met Val Phe Leu Ser Gly Asn Ala Ser Asp Ser Ser Asn Cys Thr His  
 1 5 10 15

Pro Pro Ala Pro Val Asn Ile Ser Lys Ala Ile Leu Leu Gly Val Ile  
 20 25 30

Leu Gly Gly Leu Ile Ile Phe Gly Val Leu Gly Asn Ile Leu Val Ile  
 35 40 45

Leu Ser Val Ala Cys His Arg His Leu His Ser Val Thr His Tyr Tyr  
 50 55 60

Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Thr Ser Thr Val Leu  
 65 70 75 80

Pro Phe Ser Ala Ile Phe Glu Ile Leu Gly Tyr Trp Ala Phe Gly Arg  
 85 90 95

Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala  
 100 105 110

Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val  
 115 120 125

Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Lys Arg Gly Leu  
 130 135 140

Met Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly  
 145 150 155 160

Pro Leu Phe Gly Trp Arg Gln Pro Ala Pro Glu Asp Glu Thr Ile Cys  
 165 170 175

Gln Ile Thr Glu Glu Pro Gly Tyr Val Leu Phe Ser Ala Leu Gly Ser  
 180 185 190

Phe Tyr Val Pro Leu Thr Ile Ile Leu Val Met Tyr Cys Arg Val Tyr  
 195 200 205

Val Val Ala Lys Arg Glu Ser Arg Gly Leu Lys Ser Gly Leu Lys Thr  
 210 215 220

Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn  
 225 230 235 240

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<210> 22
<211> 466
<212> PRT
<213> Oryctolagus cuniculus
```

29

210					215					220					
Asp	Lys	Ser	Asp	Ser	Glu	Gln	Val	Thr	Leu	Arg	Ile	His	Arg	Lys	Asn
225					230					235					240
Ala	Pro	Ala	Gly	Gly	Ser	Gly	Val	Ala	Ser	Ala	Lys	Asn	Lys	Thr	His
			245						250					255	
Phe	Ser	Val	Arg	Leu	Leu	Lys	Phe	Ser	Arg	Glu	Lys	Lys	Ala	Ala	Lys
			260					265					270		
Thr	Leu	Gly	Ile	Val	Val	Gly	Cys	Phe	Val	Leu	Cys	Trp	Leu	Pro	Phe
		275					280					285			
Phe	Leu	Val	Met	Pro	Ile	Gly	Ser	Phe	Phe	Pro	Asp	Phe	Lys	Pro	Pro
	290					295					300				
Glu	Thr	Val	Phe	Lys	Ile	Val	Phe	Trp	Leu	Gly	Tyr	Leu	Asn	Ser	Cys
305					310					315					320
Ile	Asn	Pro	Ile	Ile	Tyr	Pro	Cys	Ser	Ser	Gln	Glu	Phe	Lys	Lys	Ala
			325					330						335	
Phe	Gln	Asn	Val	Leu	Lys	Ile	Gln	Cys	Leu	Arg	Arg	Lys	Gln	Ser	Ser
			340					345					350		
Lys	His	Ala	Leu	Gly	Tyr	Thr	Leu	His	Ala	Pro	Ser	Gln	Ala	Leu	Glu
		355					360					365			
Gly	Gln	His	Lys	Asp	Met	Val	Arg	Ile	Pro	Val	Gly	Ser	Gly	Glu	Thr
	370					375					380				
Phe	Tyr	Lys	Ile	Ser	Lys	Thr	Asp	Gly	Val	Cys	Glu	Trp	Lys	Phe	Phe
385					390					395					400
Ser	Ser	Met	Pro	Arg	Gly	Ser	Ala	Arg	Ile	Thr	Val	Pro	Lys	Asp	Gln
			405						410					415	
Ser	Ala	Cys	Thr	Thr	Ala	Arg	Val	Arg	Ser	Lys	Ser	Phe	Leu	Gln	Val
			420					425					430		
Cys	Cys	Cys	Val	Gly	Pro	Ser	Thr	Pro	Asn	Pro	Gly	Glu	Asn	His	Gln
		435					440					445			
Val	Pro	Thr	Ile	Lys	Ile	His	Thr	Ile	Ser	Leu	Ser	Glu	Asn	Gly	Glu
	450					455					460				
Glu	Val														
465															

&lt;210&gt; 23

&lt;211&gt; 466

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 23

Met	Val	Phe	Leu	Ser	Gly	Asn	Ala	Ser	Asp	Ser	Ser	Asn	Cys	Thr	Gln
1				5					10				15		

Pro Pro Ala Pro Val Asn Ile Ser Lys Ala Ile Leu Leu Gly Val Ile  
                   20                  25                  30  
 Leu Gly Gly Leu Ile Leu Phe Gly Val Leu Gly Asn Ile Leu Val Ile  
                   35                  40                  45  
 Leu Ser Val Ala Cys His Arg His Leu His Ser Val Thr His Tyr Tyr  
                   50                  55                  60  
 Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Thr Ser Thr Val Leu  
                   65                  70                  75                  80  
 Pro Phe Ser Ala Ile Phe Glu Val Leu Gly Tyr Trp Ala Phe Gly Arg  
                   85                  90                  95  
 Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala  
                   100                  105                  110  
 Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val  
                   115                  120                  125  
 Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Arg Arg Gly Leu  
                   130                  135                  140  
 Met Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly  
                   145                  150                  155                  160  
 Pro Leu Phe Gly Trp Arg Gln Pro Ala Pro Glu Asp Glu Thr Ile Cys  
                   165                  170                  175  
 Gln Ile Asn Glu Glu Pro Gly Tyr Val Leu Phe Ser Ala Leu Gly Ser  
                   180                  185                  190  
 Phe Tyr Leu Pro Leu Ala Ile Ile Leu Val Met Tyr Cys Arg Val Tyr  
                   195                  200                  205  
 Val Val Ala Lys Arg Glu Ser Arg Gly Leu Lys Ser Gly Leu Lys Thr  
                   210                  215                  220  
 Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn  
                   225                  230                  235                  240  
 Ala Pro Ala Gly Gly Ser Gly Met Ala Ser Ala Lys Thr Lys Thr His  
                   245                  250                  255  
 Phe Ser Val Arg Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys  
                   260                  265                  270  
 Thr Leu Gly Ile Val Val Gly Cys Phe Val Leu Cys Trp Leu Pro Phe  
                   275                  280                  285  
 Phe Leu Val Met Pro Ile Gly Ser Phe Phe Pro Asp Phe Lys Pro Ser  
                   290                  295                  300  
 Glu Thr Val Phe Lys Ile Val Phe Trp Leu Gly Tyr Leu Asn Ser Cys  
                   305                  310                  315                  320  
 Ile Asn Pro Ile Ile Tyr Pro Cys Ser Ser Gln Glu Phe Lys Lys Ala

325 330 335  
 Phe Gln Asn Val Leu Arg Ile Gln Cys Leu Cys Arg Lys Gln Ser Ser  
 340 345 350  
 Lys His Ala Leu Gly Tyr Thr Leu His Pro Pro Ser Gln Ala Val Glu  
 355 360 365  
 Gly Gln His Lys Asp Met Val Arg Ile Pro Val Gly Ser Arg Glu Thr  
 370 375 380  
 Phe Tyr Arg Ile Ser Lys Thr Asp Gly Val Cys Glu Trp Lys Phe Phe  
 385 390 395 400  
 Ser Ser Met Pro Arg Gly Ser Ala Arg Ile Thr Val Ser Lys Asp Gln  
 405 410 415  
 Ser Ser Cys Thr Thr Ala Arg Val Arg Ser Lys Ser Phe Leu Gln Val  
 420 425 430  
 Cys Cys Cys Val Gly Pro Ser Thr Pro Ser Leu Asp Lys Asn His Gln  
 435 440 445  
 Val Pro Thr Ile Lys Val His Thr Ile Ser Leu Ser Glu Asn Gly Glu  
 450 455 460  
 Glu Val  
 465

<210> 24  
 <211> 470  
 <212> PRT  
 <213> Oryzias latipes

<400> 24  
 Met Thr Pro Ser Ser Val Thr Leu Asn Cys Ser Asn Cys Ser His Val  
 1 5 10 15  
 Leu Ala Pro Glu Leu Asn Thr Val Lys Ala Val Val Leu Gly Met Val  
 20 25 30  
 Leu Gly Ile Phe Ile Leu Phe Gly Val Ile Gly Asn Ile Leu Val Ile  
 35 40 45  
 Leu Ser Val Val Cys His Arg His Leu Gln Thr Val Thr Tyr Tyr Phe  
 50 55 60  
 Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Ser Ser Thr Val Leu  
 65 70 75 80  
 Pro Phe Ser Ala Ile Phe Glu Ile Leu Asp Arg Trp Val Phe Gly Arg  
 85 90 95  
 Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala  
 100 105 110  
 Ser Ile Met Ser Leu Cys Val Ile Ser Val Asp Arg Tyr Ile Gly Val  
 115 120 125



Ser Tyr Pro Leu Arg Tyr Pro Ala Ile Met Thr Lys Arg Arg Ala Leu  
 130 135 140  
 Leu Ala Val Met Leu Leu Trp Val Leu Ser Val Ile Ile Ser Ile Gly  
 145 150 155 160  
 Pro Leu Phe Gly Trp Lys Glu Pro Ala Pro Glu Asp Glu Thr Val Cys  
 165 170 175  
 Lys Ile Thr Glu Glu Pro Gly Tyr Ala Ile Phe Ser Ala Val Gly Ser  
 180 185 190  
 Phe Tyr Leu Pro Leu Ala Ile Ile Leu Ala Met Tyr Cys Arg Val Tyr  
 195 200 205  
 Val Val Ala Gln Lys Glu Ser Arg Gly Leu Lys Glu Gly Gln Lys Ile  
 210 215 220  
 Glu Lys Ser Asp Ser Glu Gln Val Ile Leu Arg Met His Arg Gly Asn  
 225 230 235 240  
 Thr Thr Val Ser Glu Asp Glu Ala Leu Arg Ser Arg Thr His Phe Ala  
 245 250 255  
 Leu Arg Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys Thr Leu  
 260 265 270  
 Gly Ile Val Val Gly Cys Phe Val Leu Cys Trp Leu Pro Phe Phe Leu  
 275 280 285  
 Val Leu Pro Ile Gly Ser Ile Phe Pro Ala Tyr Arg Pro Ser Asp Thr  
 290 295 300  
 Val Phe Lys Ile Thr Phe Trp Leu Gly Tyr Phe Asn Ser Cys Ile Asn  
 305 310 315 320  
 Pro Ile Ile Tyr Leu Cys Ser Asn Gln Glu Phe Lys Lys Ala Phe Gln  
 325 330 335  
 Ser Leu Leu Gly Val His Cys Leu Arg Met Thr Pro Arg Ala His His  
 340 345 350  
 His His Leu Ser Val Gly Gln Ser Gln Thr Gln Gly His Ser Leu Thr  
 355 360 365  
 Ile Ser Leu Asp Ser Lys Gly Ala Pro Cys Arg Leu Ser Pro Ser Ser  
 370 375 380  
 Ser Val Ala Leu Ser Arg Thr Pro Ser Ser Arg Asp Ser Arg Glu Trp  
 385 390 395 400  
 Arg Val Phe Ser Gly Gly Pro Ile Asn Ser Gly Pro Gly Pro Thr Glu  
 405 410 415  
 Ala Gly Arg Ala Lys Val Ala Lys Leu Cys Asn Lys Ser Leu His Arg  
 420 425 430  
 Thr Cys Cys Cys Ile Leu Arg Ala Arg Thr Pro Thr Gln Asp Pro Ala

435                                      440                                      445  
 Pro Leu Gly Asp Leu Pro Thr Ile Lys Ile His Gln Leu Ser Leu Ser  
     450                                      455                                      460  
  
 Glu Lys Gly Glu Ser Val  
 465                                      470  
  
 <210> 25  
 <211> 391  
 <212> PRT  
 <213> Branchiostoma lanceolatum  
  
 <400> 25  
 Met Ser Ala Asn Thr Thr Val Ser Pro Thr Glu Thr Thr Ala Asn Leu  
     1                                      5                                      10                                      15  
  
 Thr Ala Asn Ser Thr Glu Ala Ser Val Gly Ser Cys Phe Ala Pro Asn  
                                     20                                      25                                      30  
  
 Pro Tyr Ser Ala Gly Val Gln Ala Val Leu Gly Leu Ile Thr Val Ile  
                                     35                                      40                                      45  
  
 Leu Ile Leu Leu Thr Val Ile Gly Asn Val Leu Val Ile Leu Ala Val  
     50                                      55                                      60  
  
 Thr Cys His Arg Lys Met Arg Thr Val Thr Asn Phe Phe Ile Val Ser  
     65                                      70                                      75                                      80  
  
 Leu Ala Cys Ala Asp Leu Ser Val Gly Ile Thr Val Leu Pro Phe Ala  
                                     85                                      90                                      95  
  
 Ala Thr Asn Asp Ile Leu Gly Tyr Trp Pro Phe Gly Gly Tyr Cys Asp  
                                     100                                      105                                      110  
  
 Val Trp Val Ser Phe Asp Val Leu Asn Ser Thr Ala Ser Ile Leu Asn  
     115                                      120                                      125  
  
 Leu Val Val Ile Ala Phe Asp Arg Phe Leu Ala Ile Thr Ala Pro Phe  
     130                                      135                                      140  
  
 Thr Tyr His Thr Arg Met Thr Glu Arg Thr Ala Gly Ile Leu Ile Ala  
     145                                      150                                      155                                      160  
  
 Thr Val Trp Gly Ile Ser Leu Val Val Ser Phe Leu Pro Ile Gln Ala  
                                     165                                      170                                      175  
  
 Gly Trp Tyr Arg Asp Asn Gln Ser Glu Glu Ala Leu Ala Ile Tyr Ser  
                                     180                                      185                                      190  
  
 Asp Pro Cys Leu Cys Ile Phe Thr Ala Ser Thr Ala Tyr Thr Ile Val  
     195                                      200                                      205  
  
 Ser Ser Leu Ile Ser Phe Tyr Ile Pro Leu Leu Ile Met Leu Val Phe  
     210                                      215                                      220  
  
 Tyr Gly Ile Ile Phe Lys Ala Ala Arg Asp Gln Ala Arg Lys Ile Asn  
     225                                      230                                      235                                      240

Ala Leu Glu Gly Arg Leu Glu Gln Glu Asn Asn Arg Gly Lys Lys Ile  
245 250 255

Ser Leu Ala Lys Glu Lys Lys Ala Ala Lys Thr Leu Gly Ile Ile Met  
260 265 270

Gly Val Phe Ile Leu Cys Trp Leu Pro Phe Phe Val Val Asn Ile Val  
275 280 285

Asn Pro Phe Cys Asp Arg Cys Val Gln Pro Ala Val Phe Ile Ala Leu  
290 295 300

Thr Trp Leu Gly Trp Ile Asn Ser Cys Phe Asn Pro Ile Ile Tyr Ala  
305 310 315 320

Phe Asn Lys Glu Phe Arg Lys Val Phe Val Lys Met Ile Cys Cys His  
325 330 335

Lys Cys Arg Gly Val Thr Val Gly Pro Asn His Ala Asp Leu Asn Tyr  
340 345 350

Asp Pro Val Ala Met Arg Leu Lys Lys Arg Gly Glu Asn Ala Asn Gly  
355 360 365

Thr Val Asn Gly Asp Ala Asn Gly Lys Ala Asn Gly Asn Ile Glu Ala  
370 375 380

Gly Glu Gly Thr Ser Ser Ser  
385 390

<210> 26

<211> 36

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthesized  
peptide

<400> 26

Met Thr Ser Thr Cys Thr Asn Ser Thr Arg Glu Ser Asn Ser Ser His  
1 5 10 15

Thr Cys Met Pro Leu Ser Lys Met Pro Ile Ser Leu Ala His Gly Ile  
20 25 30

Ile Arg Ser Thr  
35

<210> 27

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthesized

<400> 27

<210> 28

&lt;212&gt; PRT

<213> Artificial Sequence

 $\langle 220 \rangle$  .

<223> Description of Artificial Sequence: Synthesized peptide

<400> 28

Trp   Pro   Leu   Asn   Ser  
1                      5

<210> 29

<211> 20

<212> PRT

<213> Artificial Sequence

 $\langle 220 \rangle$ 

<223> Description of Artificial Sequence: Synthesized peptide

<400> 29

Asp Arg Tyr Leu Ser Ile Ile His Pro Leu Ser Tyr Pro Ser Lys Met  
1 5 10 15

Thr Gln Arg Arg  
20

<210> 30

<211> 23

<212> PRT

<213> Artificial Sequence

$\langle 220 \rangle$

<223> Description of Artificial Sequence: Synthesized peptide

<400> 30

Gly Gln Ala Ala Phe Asp Glu Arg Asn Ala Leu Cys Ser Met Ile Trp  
1 5 10 15

Gly Ala Ser Pro Ser Tyr Thr  
20

<210> 31

<211> 182

<212> PRT

<213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthesized peptide

&lt;400&gt; 31

Cys Ala Ala Arg Arg Gln His Ala Leu Leu Tyr Asn Val Lys Arg His  
 1 5 10 15

Ser Leu Glu Val Arg Val Lys Asp Cys Val Glu Asn Glu Asp Glu Glu  
 20 25 30

Gly Ala Glu Lys Lys Glu Glu Phe Gln Asp Glu Ser Glu Phe Arg Arg  
 35 40 45

Gln His Glu Gly Glu Val Lys Ala Lys Glu Gly Arg Met Glu Ala Lys  
 50 55 60

Asp Gly Ser Leu Lys Ala Lys Glu Gly Ser Thr Gly Thr Ser Glu Ser  
 65 70 75 80

Ser Val Glu Ala Gly Ser Glu Glu Val Arg Glu Ser Ser Thr Val Ala  
 85 90 95

Ser Asp Gly Ser Met Glu Gly Lys Glu Gly Ser Thr Lys Val Glu Glu  
 100 105 110

Asn Ser Met Lys Ala Asp Lys Gly Arg Thr Glu Val Asn Gln Cys Ser  
 115 120 125

Ile Asp Leu Gly Glu Asp Asp Met Glu Phe Gly Glu Asp Asp Ile Asn  
 130 135 140

Phe Ser Glu Asp Asp Val Glu Ala Val Asn Ile Pro Glu Ser Leu Pro  
 145 150 155 160

Pro Ser Arg Arg Asn Ser Asn Ser Asn Pro Pro Leu Pro Arg Cys Tyr  
 165 170 175

Gln Cys Lys Ala Ala Lys  
 180

&lt;210&gt; 32

&lt;211&gt; 15

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthesized peptide

&lt;400&gt; 32

Ala Val Leu Ala Val Trp Val Asp Val Glu Thr Gln Val Pro Gln  
 1 5 10 15

&lt;210&gt; 33

&lt;211&gt; 55

<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthesized peptide

<400> 33  
 Tyr Gly Tyr Met His Lys Thr Ile Lys Lys Glu Ile Gln Asp Met Leu  
     1                    5                    10                    15  
 Lys Lys Phe Phe Cys Lys Glu Lys Pro Pro Lys Glu Asp Ser His Pro  
                     20                    25                    30  
 Asp Leu Pro Gly Thr Glu Gly Gly Thr Glu Gly Lys Ile Val Pro Ser  
                     35                    40                    45  
 Tyr Asp Ser Ala Thr Phe Pro  
                     50                    55

<210> 34  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: HGPRBMY8 sense primer

<400> 34  
 gcagagcact cctccactct 20

<210> 35  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: HGPRBMY8 anti-sense primer

<400> 35  
 agcaggcaat catgacaatc 20

<210> 36  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: GPCR84 sense primer

<400> 36  
 gttagcctca cccacctgtt 20

<210> 37  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: GPCR84  
 anti-sense primer

<400> 37  
 cacaatccag gtgccataga 20

<210> 38  
 <211> 42  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: HGPRBMY8 5'  
 primer

<400> 38  
 gtccccaagc ttgcaccatg acgtccacct gcaccaacag ca 42

<210> 39  
 <211> 62  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: HGPRBMY8 3'  
 Flag-tag primer

<400> 39  
 cgggatccta cttgtcgtcg tcgtccttgt agtccatagg aaaagtagca gaatcgtagg 60  
 aa 62

<210> 40  
 <211> 407  
 <212> PRT  
 <213> Homo sapiens

<400> 40  
 Met Ser Leu Asn Ser Ser Leu Ser Cys Arg Lys Glu Leu Ser Asn Leu  
 1 5 10 15  
 Thr Glu Glu Glu Gly Gly Glu Gly Gly Val Ile Ile Thr Gln Phe Ile  
 20 25 30  
 Ala Ile Ile Val Ile Thr Ile Phe Val Cys Leu Gly Asn Leu Val Ile  
 35 40 45  
 Val Val Thr Leu Tyr Lys Lys Ser Tyr Leu Leu Thr Leu Ser Asn Lys  
 50 55 60

Phe	Val	Phe	Ser	Leu	Thr	Leu	Ser	Asn	Phe	Leu	Leu	Ser	Val	Leu	Val	65	70	75	80
Leu	Pro	Phe	Val	Val	Thr	Ser	Ser	Ile	Arg	Arg	Glu	Trp	Ile	Phe	Gly	85	90		95
Val	Val	Trp	Cys	Asn	Phe	Ser	Ala	Leu	Leu	Tyr	Leu	Leu	Ile	Ser	Ser	100	105		110
Ala	Ser	Met	Leu	Thr	Leu	Gly	Val	Ile	Ala	Ile	Asp	Arg	Tyr	Tyr	Ala	115	120		125
Val	Leu	Tyr	Pro	Met	Val	Tyr	Pro	Met	Lys	Ile	Thr	Gly	Asn	Arg	Ala	130	135		140
Val	Met	Ala	Leu	Val	Tyr	Ile	Trp	Leu	His	Ser	Leu	Ile	Gly	Cys	Leu	145	150		155
Pro	Pro	Leu	Phe	Gly	Trp	Ser	Ser	Val	Glu	Phe	Asp	Glu	Phe	Lys	Trp	165	170		175
Met	Cys	Val	Ala	Ala	Trp	His	Arg	Glu	Pro	Gly	Tyr	Thr	Ala	Phe	Trp	180	185		190
Gln	Ile	Trp	Cys	Ala	Leu	Phe	Pro	Phe	Leu	Val	Met	Leu	Val	Cys	Tyr	195	200		205
Gly	Phe	Ile	Phe	Arg	Val	Ala	Arg	Val	Lys	Ala	Arg	Lys	Val	His	Cys	210	215		220
Gly	Thr	Val	Val	Ile	Val	Glu	Glu	Asp	Ala	Gln	Arg	Thr	Gly	Arg	Lys	225	230		235
Asn	Ser	Ser	Thr	Ser	Thr	Ser	Ser	Ser	Gly	Ser	Arg	Arg	Asn	Ala	Phe	245	250		255
Gln	Gly	Val	Val	Tyr	Ser	Ala	Asn	Gln	Cys	Lys	Ala	Leu	Ile	Thr	Ile	260	265		270
Leu	Val	Val	Leu	Gly	Ala	Phe	Met	Val	Thr	Trp	Gly	Pro	Tyr	Met	Val	275	280		285
Val	Ile	Ala	Ser	Glu	Ala	Leu	Trp	Gly	Lys	Ser	Ser	Val	Ser	Pro	Ser	290	295		300
Leu	Glu	Thr	Trp	Ala	Thr	Trp	Leu	Ser	Phe	Ala	Ser	Ala	Val	Cys	His	305	310		315
Pro	Leu	Ile	Tyr	Gly	Leu	Trp	Asn	Lys	Thr	Val	Arg	Lys	Glu	Leu	Leu	325	330		335
Gly	Met	Cys	Phe	Gly	Asp	Arg	Tyr	Tyr	Arg	Glu	Pro	Phe	Val	Gln	Arg	340	345		350
Gln	Arg	Thr	Ser	Arg	Leu	Phe	Ser	Ile	Ser	Asn	Arg	Ile	Thr	Asp	Leu	355	360		365
Gly	Leu	Ser	Pro	His	Leu	Thr	Ala	Leu	Met	Ala	Gly	Gly	Gln	Pro	Leu	370	375		380



Gly His Ser Ser Ser Thr Gly Asp Thr Gly Phe Ser Cys Ser Gln Asp  
 385 390 395 400

Ser Gly Asn Leu Arg Ala Leu  
 405

<210> 41

<211> 448

<212> PRT

<213> Homo sapiens

<400> 41

Met Thr Ser Thr Cys Thr Asn Ser Thr Arg Glu Ser Asn Ser Ser His  
 1 5 10 15

Thr Cys Met Pro Leu Ser Lys Met Pro Ile Ser Leu Ala His Gly Ile  
 20 25 30

Ile Arg Ser Thr Val Leu Val Ile Phe Leu Ala Ala Ser Phe Val Gly  
 35 40 45

Asn Ile Val Leu Ala Leu Val Leu Gln Arg Lys Pro Gln Leu Leu Gln  
 50 55 60

Val Thr Asn Arg Phe Ile Phe Asn Leu Leu Val Thr Asp Leu Leu Gln  
 65 70 75 80

Ile Ser Leu Val Ala Pro Trp Val Val Ala Thr Ser Val Pro Leu Phe  
 85 90 95

Trp Pro Leu Asn Ser His Phe Cys Thr Ala Leu Val Ser Leu Thr His  
 100 105 110

Leu Phe Ala Phe Ala Ser Val Asn Thr Ile Val Val Val Ser Val Asp  
 115 120 125

Arg Tyr Leu Ser Ile Ile His Pro Leu Ser Tyr Pro Ser Lys Met Thr  
 130 135 140

Gln Arg Arg Gly Tyr Leu Leu Leu Tyr Gly Thr Trp Ile Val Ala Ile  
 145 150 155 160

Leu Gln Ser Thr Pro Pro Leu Tyr Gly Trp Gly Gln Ala Ala Phe Asp  
 165 170 175

Glu Arg Asn Ala Leu Cys Ser Met Ile Trp Gly Ala Ser Pro Ser Tyr  
 180 185 190

Thr Ile Leu Ser Val Val Ser Phe Ile Val Ile Pro Leu Ile Val Met  
 195 200 205

Ile Ala Cys Tyr Ser Val Val Phe Cys Ala Ala Arg Arg Gln His Ala  
 210 215 220

Leu Leu Tyr Asn Val Lys Arg His Ser Leu Glu Val Arg Val Lys Asp  
 225 230 235 240

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<210> 42
<211> 448
<212> PRT
<213> Homo sapiens
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Met Thr Ser Thr Cys Thr Asn Ser Thr Arg Glu Ser Asn Ser Ser His  
1 5 10 15

Ile Arg Ser Thr Val Leu Val Ile Phe Leu Ala Ala Ser Phe Val Gly  
35 40 45

42

50					55					60					
Val	Thr	Asn	Arg	Phe	Ile	Phe	Asn	Leu	Leu	Val	Thr	Asp	Leu	Leu	Gln
65					70					75					80
Ile	Ser	Leu	Val	Ala	Pro	Trp	Val	Val	Ala	Thr	Ser	Val	Pro	Leu	Phe
				85					90					95	
Trp	Pro	Leu	Asn	Ser	His	Phe	Cys	Thr	Ala	Leu	Val	Ser	Leu	Thr	His
			100					105					110		
Leu	Phe	Ala	Phe	Ala	Ser	Val	Asn	Thr	Ile	Val	Val	Val	Ser	Val	Asp
		115					120					125			
Arg	Tyr	Leu	Ser	Ile	Ile	His	Pro	Leu	Ser	Tyr	Pro	Ser	Lys	Met	Thr
	130					135					140				
Gln	Arg	Arg	Gly	Tyr	Leu	Leu	Leu	Tyr	Gly	Thr	Trp	Ile	Val	Ala	Ile
145					150					155					160
Leu	Gln	Ser	Thr	Pro	Pro	Leu	Tyr	Gly	Trp	Gly	Gln	Ala	Ala	Phe	Asp
				165					170					175	
Glu	Arg	Asn	Ala	Leu	Cys	Ser	Met	Ile	Trp	Gly	Ala	Ser	Pro	Ser	Tyr
			180					185					190		
Thr	Ile	Leu	Ser	Val	Val	Ser	Phe	Ile	Val	Ile	Pro	Leu	Ile	Val	Met
		195					200					205			
Ile	Ala	Cys	Tyr	Ser	Val	Val	Phe	Cys	Ala	Ala	Arg	Arg	Gln	His	Ala
	210					215					220				
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Cys	Val	Glu	Asn	Glu	Asp	Glu	Glu	Gly	Ala	Glu	Lys	Lys	Glu	Glu	Phe
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Gln	Asp	Glu	Ser	Glu	Phe	Arg	Arg	Gln	His	Glu	Gly	Glu	Val	Lys	Ala
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Asn Ile Val Leu Ala Leu Val Leu Gln Arg Lys Pro Gln Leu Leu Gln  
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Val Thr Asn Arg Phe Ile Phe Asn Leu Leu Val Thr Asp Leu Leu Gln  
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Trp Pro Leu Asn Ser His Phe Cys Thr Ala Leu Val Ser Leu Thr His  
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Leu Phe Ala Phe Ala Ser Val Asn Thr Ile Val Leu Val Ser Val Asp  
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&lt;210&gt; 44

&lt;211&gt; 1659

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 44

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1659

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&lt;210&gt; 45

&lt;211&gt; 1527

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 45

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1527

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&lt;210&gt; 46

&lt;211&gt; 1527

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 46

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<211> 1580

<212> DNA

<213> Homo sapiens

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 Lys Glu Gly Ser Thr Lys Val Glu Glu Asn Ser Met Lys Ala Asp Lys

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

<213> Artificial Sequence

<223> Description of Artificial Sequence: SNP

21

<213> Artificial Sequence

<223> Description of Artificial Sequence: SNP

21

<210> 52  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: SNP

<400> 52  
 ggtgaagatg acatggagtt t 21

<210> 53  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: SNP

<400> 53  
 ggtgaagatg gcatggagtt t 21

<210> 54  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: SNP

<400> 54  
 gtgcaaagct gctaaagtga t 21

<210> 55  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: SNP

<400> 55  
 gtgcaaagct actaaagtga t 21

<210> 56  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: SNP

<400> 56  
 tgcaaagctg ctaaagtgat c 21

<210> 57  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: SNP

<400> 57  
 tgcaaagctg ataaagtgat c 21

<210> 58  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: SNP

<400> 58  
 gcaaagctgc taaagtgatc t 21

<210> 59  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: SNP

<400> 59  
 gcaaagctgc gaaagtgatc t 21

<210> 60  
 <211> 17  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: GAPDH F3  
 Forward primer

<400> 60  
 agccgagcca catcgct 17

<210> 61  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: GAPDH R1  
 Reverse primer

<400> 61  
gtgaaccaggc gcccaatac 19

<210> 62  
<211> 28  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: GAPDH-PVIC  
Taqman(R) Probe

<400> 62  
caaatccgtt gactccgacc ttcacctt 28

<210> 63  
<211> 99  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Oligo 1;  
N=A+G+C+T and B=C+G+T

<400> 63  
cgaagcgtaa gggcccagcc ggccnnbnnb nbnbnbnbn nbnnbnbnbn bnnbnbnbnb 60  
nbnbnbnbn nbnnbnbnbn bnnbccgggt ccgggcggc 99

<210> 64  
<211> 95  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Oligo 2;  
N=A+G+C+T and V=C+A+G

<400> 64  
aaaaggaaaa aagcggccgc vnnvnnvnnv nnvnnvnnvn nvnnvnnvnn vnnvnnvnnv 60  
nnvnnvnnvn nvnnvnnvnn gccgccgga ccggg 95

<210> 65  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 65  
Pro Gly Pro Gly Gly  
1 5

<210> 66  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 66  
 Gly Asp Phe Trp Tyr Glu Ala Cys Glu Ser Ser Cys Ala Phe Trp  
           1                  5                  10                  15

<210> 67  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 67  
 Leu Glu Trp Gly Ser Asp Val Phe Tyr Asp Val Tyr Asp Cys Cys  
           1                  5                  10                  15

<210> 68  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 68  
 Cys Leu Arg Ser Gly Thr Gly Cys Ala Phe Gln Leu Tyr Arg Phe  
           1                  5                  10                  15

<210> 69  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 69  
 Asn Asn Phe Pro Cys Leu Arg Ser Gly Arg Asn Cys Asp Ala Gly  
           1                  5                  10                  15

<210> 70  
 <211> 15

<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 70  
 Arg Ile Val Pro Asn Gly Tyr Phe Asn Val His Gly Arg Ser Leu  
           1                          5                          10                          15

<210> 71  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 71  
 Arg Ile Asp Ser Cys Ala Lys Tyr Phe Leu Arg Ser Cys Asp  
           1                          5                          10

<210> 72  
 <211> 39  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic 5' primer

<400> 72  
 gcagcagcgg ccgcaccgtg ctggttatct tcctcgccg 39

<210> 73  
 <211> 35  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic 3' primer

<400> 73  
 gcagcagtcg acaggaaaag tagcagaatc gtagg 35

<210> 74  
 <211> 38  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic 5'



primer

<400> 74  
gcagcagcgg ccgcatgacg tccacctgca ccaacagc

38

<210> 75  
<211> 37  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic 3'  
primer

<400> 75  
gcagcagtcg acatagacat aggggtggat gcagcac

37

<210> 76  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 76  
Ser Thr Cys Thr Asn Ser Thr Arg Glu Ser Asn Ser Ser  
1 5 10

<210> 77  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 77  
Gln Leu Leu Gln Val Thr Asn Arg Phe Ile Phe Asn Leu  
1 5 10

<210> 78  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 78  
Tyr Pro Ser Lys Met Thr Gln Arg Arg Gly Tyr Leu Leu  
1 5 10

<210> 79  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 79  
 Glu Ala Lys Asp Gly Ser Leu Lys Ala Lys Glu Gly Ser  
       1                              5                              10

<210> 80  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 80  
 Glu Gly Lys Glu Gly Ser Thr Lys Val Glu Glu Asn Ser  
       1                              5                              10

<210> 81  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 81  
 Lys Val Glu Glu Asn Ser Met Lys Ala Asp Lys Gly Arg  
       1                              5                              10

<210> 82  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 82  
 Glu Ser Leu Pro Pro Ser Arg Arg Asn Ser Asn Ser Asn  
       1                              5                              10

<210> 83

<211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 83  
 Gly Tyr Met His Lys Thr Ile Lys Lys Glu Ile Gln Asp  
           1                          5                          10

<210> 84  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 84  
 Ser Thr Cys Thr Asn Ser Thr Arg Glu Ser Asn Ser Ser His  
           1                          5                          10

<210> 85  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 85  
 Thr Gly Thr Ser Glu Ser Ser Val Glu Ala Arg Gly Ser Glu  
           1                          5                          10

<210> 86  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 86  
 Gly Lys Glu Gly Ser Thr Lys Val Glu Glu Asn Ser Met Lys  
           1                          5                          10

<210> 87  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic polypeptide

&lt;400&gt; 87

Asp	Asp	Ile	Asn	Phe	Ser	Glu	Asp	Asp	Val	Glu	Ala	Val	Asn
1				5					10				

&lt;210&gt; 88

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic polypeptide

&lt;400&gt; 88

Pro	Pro	Lys	Glu	Asp	Ser	His	Pro	Asp	Leu	Pro	Gly	Thr	Glu
1				5					10				

&lt;210&gt; 89

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic polypeptide

&lt;400&gt; 89

Leu	Leu	Tyr	Asn	Val	Lys	Arg	His	Ser	Leu	Glu	Val	Arg	Val
1				5					10				

&lt;210&gt; 90

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic polypeptide

&lt;400&gt; 90

Ser	Leu	Pro	Pro	Ser	Arg	Arg	Asn	Ser	Asn	Ser	Asn	Pro	Pro
1				5					10				

&lt;210&gt; 91

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic

## polypeptide

&lt;400&gt; 91

Thr Ser Thr Cys Thr Asn Ser Thr Arg Glu Ser Asn Ser Ser  
 1 5 10

&lt;210&gt; 92

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic polypeptide

&lt;400&gt; 92

Ser Thr Arg Glu Ser Asn Ser Ser His Thr Cys Met Pro Leu  
 1 5 10

&lt;210&gt; 93

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic polypeptide

&lt;400&gt; 93

Gly Glu Asp Asp Ile Asn Phe Ser Glu Asp Asp Val Glu Ala  
 1 5 10

&lt;210&gt; 94

&lt;211&gt; 16

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic polypeptide

&lt;400&gt; 94

Ile Ser Leu Ala His Gly Ile Ile Arg Ser Thr Val Leu Val Ile Phe  
 1 5 10 15

&lt;210&gt; 95

&lt;211&gt; 16

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic polypeptide

&lt;400&gt; 95

Cys Ser Met Ile Trp Gly Ala Ser Pro Ser Tyr Thr Ile Leu Ser Val  
 1 5 10 15

<210> 96

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 96

Met Glu Ala Lys Asp Gly Ser Leu Lys Ala Lys Glu Gly Ser Thr Gly  
 1 5 10 15

<210> 97

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 97

Leu Lys Ala Lys Glu Gly Ser Thr Gly Thr Ser Glu Ser Ser Val Glu  
 1 5 10 15

<210> 98

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 98

Lys Glu Gly Ser Thr Gly Thr Ser Glu Ser Ser Val Glu Ala Arg Gly  
 1 5 10 15

<210> 99

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 99

Thr Val Ala Ser Asp Gly Ser Met Glu Gly Lys Glu Gly Ser Thr Lys  
 1 5 10 15

<210> 100  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 100  
 His Pro Asp Leu Pro Gly Thr Glu Gly Gly Thr Glu Gly Lys Ile Val  
 1 5 10 15

<210> 101  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 101  
 Leu Pro Gly Thr Glu Gly Gly Thr Glu Gly Lys Ile Val Pro Ser Tyr  
 1 5 10 15

<210> 102  
 <211> 21  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 102  
 Ser Val Val Ser Phe Ile Val Ile Pro Leu Ile Val Met Ile Ala Cys  
 1 5 10 15

Tyr Ser Val Val Phe  
 20